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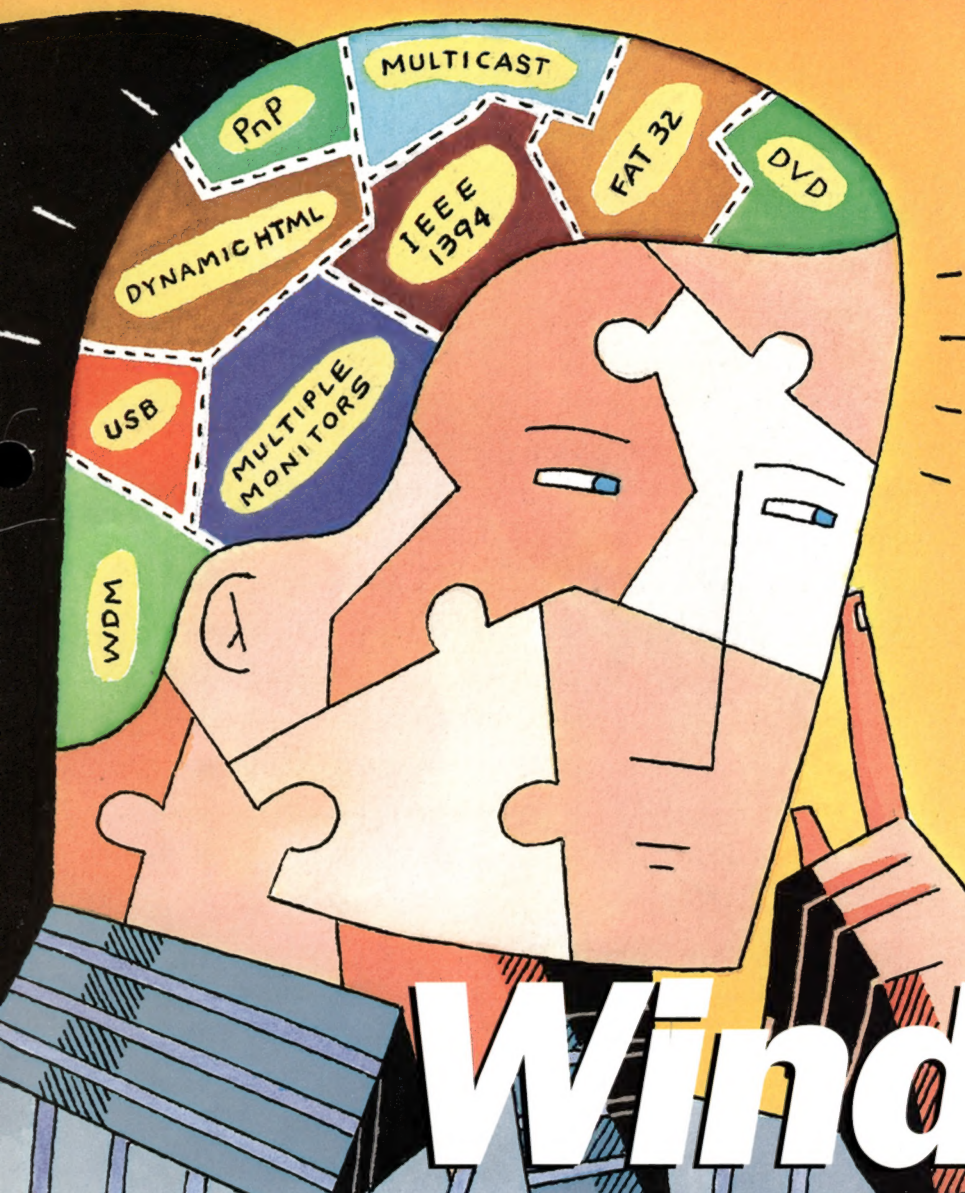

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Inside Windows 98

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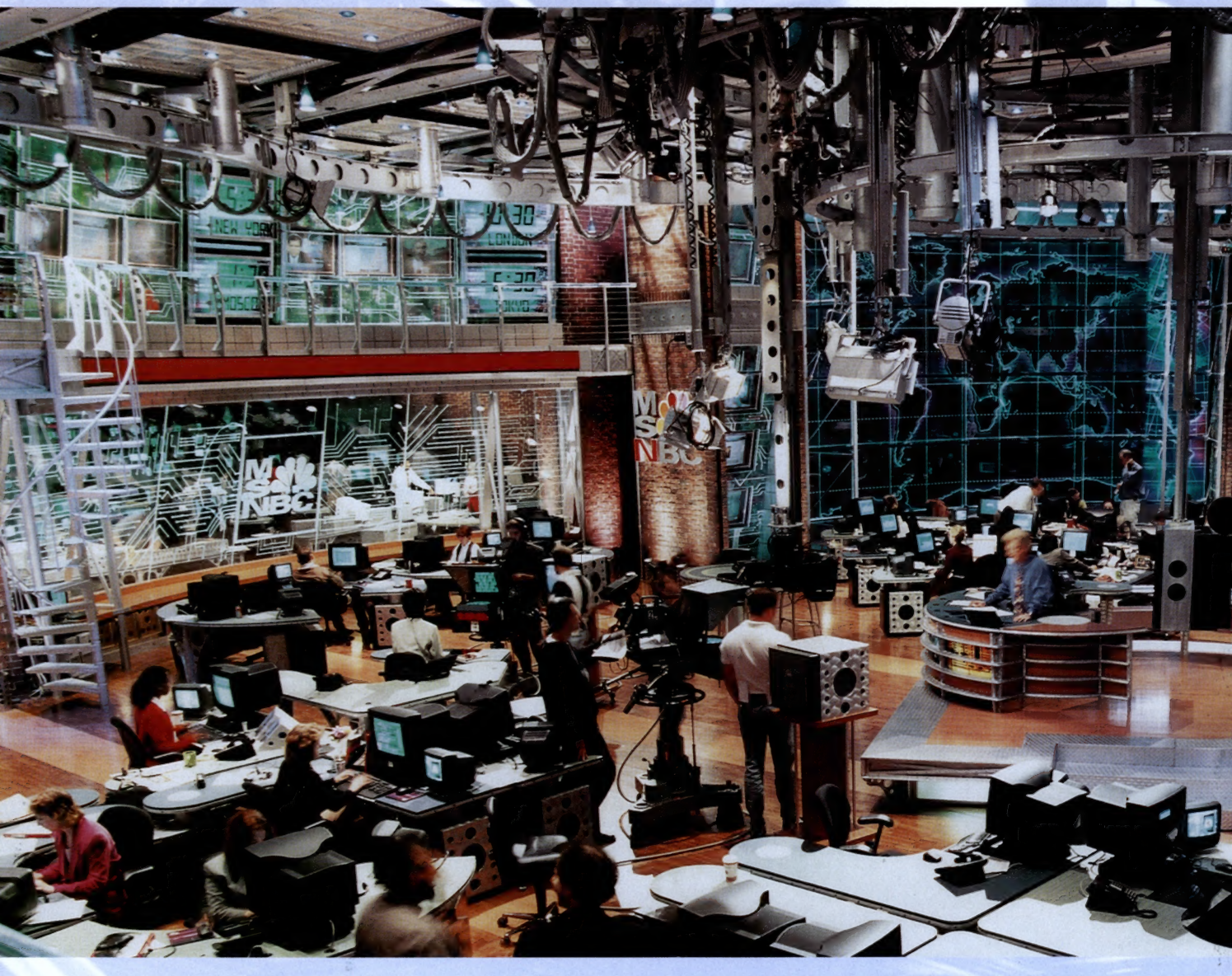

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10PM ET & PT FRI, 9PM ET & PT SAT & SUN

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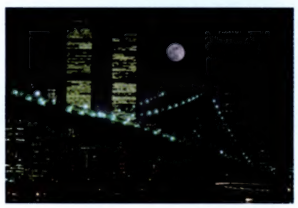

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FOR YOUR EYES ONLY

Get Windows 98 insider updates from the Windows 98 Spy at the Personal Computing site: http://www.microsoft.com/magazine/spspy98/.

Cover Illustration by Dave Black

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letter from the editor

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We recently held a series of reader focus group meetings that gave me the chance to hear what some of you had to say about *Microsoft Magazine*. We learned that you like *Microsoft Magazine*, but some of you are not sure why you are getting it. I want to take this opportunity to bring you into the picture.

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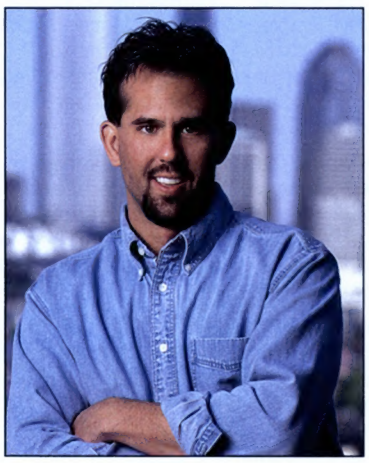

Our mission: Help our readers get the most out of their personal computing experience using Microsoft products and services.

To that end, we have a lot in store for you in this issue. Here's a sample.

With the coming release of Windows® 98, I'm sure many of you are curious about the technologies that this great new operating system will incorporate. In our page 16 cover story, we take you behind the scenes and let the key developers (those folks who write the code) give their perspective on what's cool about this next version of Windows. It's your chance to find out first-hand what the new technologies will mean to users like yourself.

Speaking of upgrades, Office 97 has been out for a while now yet you may not have upgraded to this latest version. If you're lagging behind because you don't see the benefits of upgrading, you should read our Office 97 review on page 12, which explores many of the Web capabilities of this latest version of the world's best-selling productivity suite.

Spring is right around the corner, and it's time to start thinking about your vacation travel plans. Whether you want to escape the winter blues immediately or are proactively planning your summer holiday, we show you how to do it all online in our Step by Step department on page 23.

I hope you enjoy this and every issue of *Microsoft Magazine*. As always, we want to hear from you, so if you have ideas on how we can make the magazine even better and give you more of what you want, please let us know at *msmag@microsoft.com*.

Sincerely,

Jon Ganio
Editor-in-Chief

Visit the Microsoft Personal Computing site at http://www.microsoft.com/magazine/spmagazine/

letters to the editor

Don't be cruel

We have just received our winter 1997/98 issue of your publication. While we usually enjoy it very much, this time we took exception to one of your features, namely "Games of Conquest" by David Shower. On page 21 this depicts a terrified elephant wearing leg and face decorations, in a violent situation, being confronted by soldiers with spears.

While we realize this is just a game, the illustration of this animal in this pose is most demeaning. In particular, we question what kind of message it sends to impressionable young people. That animals are ours to use and abuse? That violence towards animals is acceptable?

We are now in a more enlightened era wherein showing animals in such humiliating stances is frowned upon. For the future, we hope you will be more considerate when deciding what to include in your magazine, especially when it pertains to our fellow creatures. Sincerely,

John and Suzanne Carlson

We re sorry for any distress the illustration may have caused. There are 12 civilizations in Age of Empires", and Microsoft conducted extensive research on each so they would play differently. In many cases, the differences are based on historical fact.

For example, the Persians were known to use war elephants in battle, whereas the Egyptians primarily employed chariots; as a result, in the game the Persian culture has access to war elephants while the Egyptian culture does not.

Age of Empires includes a 40,000-word encyclopedia that provides historical notes on the game. It discusses the different cultures available for play, the game technologies, the rise of civilizations, and some of the intricacies of ancient warfare.

The Age of Empires team recently released a Microsoft Age of Empires 1.0a upgrade that includes several enhancements; get it at http://www.microsoft.com/magazine/spempires/.

Greetings to you

I recently read the article on Greetings Workshop Deluxe. I just wanted to let you know that I think that this program is a wonderful idea. I often want to send greetings to friends, but I don't have time to run out to the store and pick up a card.

I have a question, however. When using this product to create an electronic greeting, what does the recipient need in order to view the animation and hear the sound?

Amy Zaburones
Via Internet

To view Microsoft Greetings Workshop Deluxe multimedia greetings that include animation, the recipient will need one of the following: Microsoft Internet Explorer version 3.0 or later; Netscape Navigator Gold and Standard editions 3.0 or later; or Netscape Navigator version 4.0 or later. In addition, recipients will need an audio board and speakers or headphones to hear the sound. Learn more at http://www.microsoft.com/magazine/spGreetings/.

New ActiMates playmates

My child loves her new ActiMates™ Barney. Are there plans for any new ActiMates characters?

D. Sanders
Via Internet

Barney has proven such a hit with kids that there are new ActiMates interactive toys in the works. Next fall Microsoft will introduce ActiMates Arthur and his little sister D.W. Based on the best-selling book series and hit Arthur TV show on PBS, the new ActiMates characters will play 12 games and activities, tell time, share fun phrases, and much more. The new characters are designed for kids age 4 and up. Add the TV Pack and the characters interact with ActiMates Arthur—compatible videos and daily broadcasts of Arthur on PBS! Add the accessory PC Pack and the characters interact with ActiMates Arthur—compatible software and the Arthur Web site! You'll find these new ActiMates characters on store shelves this fall; watch for more details at http://www.microsoft.com/magazine/spactimates/.

Contests on the horizon

Will you be having more contests like the one you held last fall?

Diana Bald
Via Internet

Response to last fall's reader tip contest was overwhelming. Clearly, our readers want more contests, and we will oblige. Meanwhile, watch for the results of our fall tips contest in the next issue of Microsoft Magazine.

find it on the Web

HOT LINKS

Age of Empires	http://www.microsoft.com/magazine/spempires/
Greetings Workshop	http://www.microsoft.com/magazine/spGreetings/
ActiMates interactive toys	http://www.microsoft.com/magazine/spactimates/

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It is Microsoft Magazine's goal to bring readers the latest and most useful information on the ever-changing world of software and the Internet. Although the editors make every effort to ensure the accuracy of product information and URLs published in the magazine, changes may occur after we have gone to press. We apologize for any inconvenience this may cause.

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Windows 98 Spy reports	http://www.microsoft.com/magazine/spspy98/
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Microsoft® extreme

Editor's Choice

The Big event

YOU'VE HEARD A LOT ABOUT Windows 98; how would you like a chance to be among the first to actually see it in action? The event is called Microsoft Extreme, and it's your opportunity to get an inside view of the company's hot new technologies, including the newest version of the Windows operating system. The next date for this live multimedia showcase, conducted simultaneously in movie theaters across the United States and Canada, is April 4, 1998.

No, you won't be seeing commercials. These are live demos conducted by the real people who make the product, beamed to you via satellite from Microsoft headquarters. The feature subject is Windows 98, along with updates on select Office products like Outlook™ and Publisher. But look for a few surprises as well: Microsoft Extreme includes a preview of technologies straight out of the research and development labs.

Microsoft Extreme puts you on the cutting edge of computing. To confirm the schedule and find a theater near you, go to http://www.microsoft.com/magazine/spextreme98/.

Be part of the Golden Age of Computing

MICROSOFT IS AN ENTHUSIASTIC COSPONSOR of the Lifetime Connections seminar series. Designed for older adults, the seminars take place in a nonthreatening classroom setting and offer basic information about hardware, software, and the Internet. Participants get hands-on experience and see real-life examples of the ways computers can help them do what they want to do, from communicating with family members to pursuing their personal interests. For more information, check out SeniorNet at http://www.seniornet.org/ or the American Association of Retired Persons at http://www.aarp.org/.

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"Pssst!"

MONTHS OF CAREFUL PLANNING and patient infiltration are paying off for our mole. The Windows 98 development team suspects nothing. Our spy smuggles out regular reports revealing new features and improvements in the operating system. Look for our Windows 98 Spy briefs on the Personal Computing site at http://www.microsoft.com/magazine/spspy98/. And remember to keep this just between us.

TaxRx

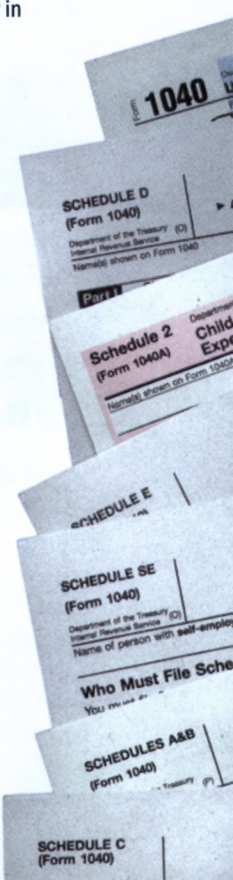
DO YOU DREAD SURPRISES COME April 15? Money 98 Financial Suite helps take the mystery—and suspense—out of tax time.

Throughout the year, as you track your income, investments, and expenditures with this personal finance software, the new Tax Estimator Worksheet continually updates your projected taxes. You can access this information any time you need to, or just check it out while reviewing the Money 98 monthly financial report. If you need to withhold more (or with luck, less) the Tax Estimator Worksheet estimates the amount. And when the dreaded day finally arrives, Money 98 provides an easy way to export this data to popular tax preparation software.

With Money 98 Financial Suite, you can do more than estimate what tax you owe; you can learn how to owe less with help from the Money Insider™ feature. This collection of more than 100 financial advice articles includes an extensive section on taxes. For example, are you taking advantage of all your deductions? From meals and magazines to saunas and swimming pools, Money Insider may show you deductions you never imagined, plus more ways to keep more of your money.

Of course, taxes are just the tip of the money management iceberg (or at least, they should be). Money 98 Financial Suite is a collection of powerful tools to help you simplify and organize the many aspects of your personal finances, from daily expenses to long-term financial planning. Use the integrated online services to pay bills and perform online banking, as well as link to the Microsoft Money Insider and Microsoft Investor sites for financial and investing information on the Web. You can even customize the Money 98 home page to greet you with important financial reminders such as upcoming bills and the status of your key accounts.

Find out how this personal finance software package puts you better in charge of your money at http://www.microsoft.com/magazine/spmoney/. Who knows? Money 98 Financial Suite might make April 15 seem like just another day.



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PCs for Beginners

Simply put, every new computer user needs this title. It helps you get comfortable with your computer before you even turn it on, guiding you from what to expect to what you can accomplish in one fluid motion. The accompanying multimedia training CD was designed to be as intuitive as it is engaging and will help get you up to speed in no time.

Microsoft Windows 98 Starts Here

Don't miss a beat when you upgrade to Windows 98. This excellent multimedia program in the Starts Here™ series provides hands-on exercises, overviews, and quizzes to demonstrate the powerful new features of Windows 98 in a quick, easy, and fun style.

Microsoft Word97/ Excel 97 In-Depth Training Starts Here

Whether you are studying for the Microsoft Office User Specialist exams or simply want in-depth training in Word and Excel, this multimedia title is the one for you. You get serious training presented in a clear and concise manner, and best of all, you can do it all in your spare time and at your own pace.

Microsoft Internet Explorer 4 Starts Here, Deluxe Learning Edition

This is a whole kit of great stuff featuring a hands-on multimedia tutorial and a 412-page book packed with info on all of the new features of Internet Explorer 4. It guides you through the whole Internet process, with enough tips and tricks to get you surfing the Web like a pro in no time. It also comes equipped with a full copy of Internet Explorer 4 so you won't lose any time putting your new skills to use.

Make yourself at Home

SOON THERE WILL BE A NEW WAY TO GET MORE out of microsoft.com, Microsoft's online computing resource featuring over 150,000 Web pages of technical information and product news. At press time the team was putting finishing touches on a new Personalization Wizard, a feature that enables you to customize the Microsoft home page to fit your personal computing needs.

Use the wizard to create up to 10 custom links to key sites anywhere on microsoft.com; you won't have to go searching the vast site for information—it comes to you! You can also install the stock ticker from the Microsoft Investor site to get the latest financial figures. If you're overseas, set the home page to link to the nearest Microsoft subsidiary to quickly check the top Microsoft news and events in any country where Microsoft has an office.

Look for this new feature on the Microsoft home page and truly make yourself at home: http://www.microsoft.com/magazine/spmicrosoft/.

Publisher 98

Professional Publishing Made Easy

by Cynthia Randall

In the cutthroat world of small business, appearance is everything. Even the humblest solo operation needs to promote itself with professional-caliber brochures, business cards, Web sites, and other publications. Budget may dictate a do-it-yourself approach, but the result must not be amateurish.

With Microsoft Publisher 98, businesses and organizations of any size can create professional-looking publications without the expense of a staff designer or professional design firm. Publisher 98 is a major upgrade of the familiar Publisher program, offering all-new design templates; a flexible, easy-to-use wizard model; and many new features.

Thanks to the application's automated design expertise, even "non-designers" can create publications that look great in print or posted to the Web. Features include:

DESIGN SETS Use these professionally produced suites of templates to build a consistent brand look across all your company's marketing materials, including business cards, brochures, letterhead, forms, gift certificates, and even Web sites. With Design Sets, you're well on your way to brand recognition.

AUTOCONVERT This new feature automatically transforms your Web sites into brochures or newsletters, and vice versa.

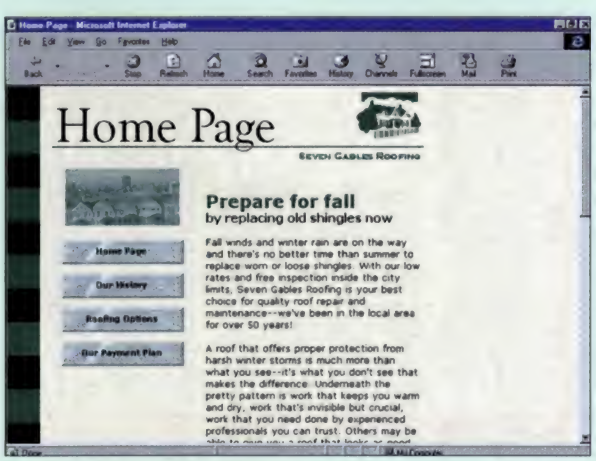
PERSONAL PROFILE Publisher 98 builds up to four Personal Profiles as you work. Use these to store frequently used information such as a name, address, and phone number, as well as Color Schemes and logos, and automatically place them in future publications.

SMART OBJECTS Smart objects save you time by detecting frequently performed tasks and completing or simplifying them. For instance, when you change a title in a Web page navigation bar or add text to an existing button, Publisher automatically updates that information across all pages of your Web site.

Publisher 98 also makes it easy to customize your publications with sophisticated yet easy-to-use tools for rotating objects, adding shadows, embossing text, and even importing logos. After you've created a publication, run the Publisher 98 Design Checker to scan for print and online design problems, like an overload of colors or fonts, or large images that take a long time to download over the Internet. With this feature, you don't need to be a technical expert to ensure that customers are getting your message.

As a member of the Microsoft Office family of applications, Publisher 98 contains many familiar Office features. Get help when you need it with the animated Office Assistant. Correct changes easily with Multi-Level Undo. Check spelling as you go with Background Spelling, Spell It, and AutoCorrect, features already familiar to users of Microsoft Word.

Don't let a small staff or limited budget keep you from having a big presence. With Publisher 98, businesses and organizations of any size can deliver the right message.



With AutoConvert, you can quickly transform a Publisher 98 Web site into a brochure or newsletter, and vice versa.

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find it on the Web

HOT LINKS

Publisher 98 http://www.microsoft.com/magazine/sppublisher/

Put the Web to Work with Office 97

by H. S. Schulman

A Whole New Outlook

When Office 97 debuted, it included an all-new personal information management application called Microsoft Outlook. Now Outlook has been upgraded: Outlook 98 provides an integrated suite of tools for personal productivity and managing all your personal, group, and Internet information from e-mail, contacts, and schedules to Web pages, favorites sites, and channels all in one place and easy to use.

Work in an integrated environment: Outlook keeps all your critical information such as e-mail, calendar, contacts, and tasks in one place. An innovative new Outlook Today view provides a customizable day-at-a-glance summary; this view can also be displayed on the Windows Active Desktop™. And using the application's AutoCreate feature, you simply drag and drop e-mail messages and Outlook automatically transforms them into Tasks, Contacts, or Calendar entries no retyping required.

Throw away your Rolodex: With the Outlook Contact Manager you can dial a phone, send e-mail or a fax, jump to a Web site, and even initiate a real-time conference with Microsoft NetMeeting™. You can also send and receive contacts (no more fumbling with business cards or address books).

Manage your e-mail: Outlook 98 has powerful e-mail organization features. A Rules Wizard makes it easy to manage incoming and outgoing e-mail automatically; the application will even identify and deal with junk e-mail (spam). You can prioritize mail quickly with AutoPreview, which displays the first three lines of a message without opening it. You can even exchange information and Web pages using HTML-formatted e-mail.

Stay organized anywhere: Outlook 98 takes information on the road. Used in conjunction with Microsoft Exchange Server, synchronized Offline Folders allow you to work with server-based information, online and offline. Outlook 98 also synchronizes with all leading palmtops, including the new Pocket Outlook in all Windows CE devices, Palm Pilot, and the Timex DataLink watch.

Registered users of Office 97 are eligible to upgrade to Outlook 98 at no charge. Find out how to get the upgrade CD on the Outlook Web site: http://www.microsoft.com/magazine/spoutlook/.

More and more, access to the World Wide Web is a business and personal necessity. Office 97's new Web integration features simplify that access. They link you directly with the power of the Internet, and give you the flexibility to move back and forth between the Web and your own documents smoothly and easily.

Any Office 97 document can include hyperlinks, which enable readers to jump directly from your document to other Office documents or Internet sites. For instance, in an e-mail you write to a colleague, explaining a recent trend in your industry, you could include a hyperlink to a pertinent article on the Internet. Or, a Word document explaining sales figures could include a hyperlink to an Excel worksheet that tracks those figures in detail over a given period of time.

In addition, Office 97 makes you an "instant expert" in HTML. The new Save as HTML feature lets you save files in HTML format even if you're not accomplished in HTML coding. This boon to businesses, which had to rely on specialized HTML teams to prepare documents for the Web, is also useful for home users, who may not have the time or inclination to become HTML experts. The feature is active in Word, Excel, PowerPoint®, and Microsoft Access.

You can use Word as your HTML editor. Simply click File, New, and select Web Pages to create a new HTML document. And now you can e-mail that HTML document using the new version of Outlook 98 (see "A Whole New Outlook" at left).

Want to link to an Internet site without interrupting your work on an Office document? One click on the link and your computer automatically starts

Office 97 Editions Reference Chart

	Standard	Small Business	Professional
Estimated retail price (full version)	$499	$499	$599
Estimated retail price (upgrade)	$249	$249	$349
Word 97	•	•	•
Excel 97	•	•	•
Outlook 97	•	•	•
PowerPoint 97	•		•
Microsoft Access 97			•
Microsoft Bookshelf® Basics			•
Publisher 97		•	
Small Business Financial Manager 97		•	
Automap® Streets Plus		•	
Internet Explorer	•		•

Note: The Office 97 Developer Edition, for developers who need to create specific software solutions and specialized functions using Microsoft Office, contains the standard Office applications, plus several developer tools and a royalty-free Microsoft run-time license. For information, go to http://www.microsoft.com/magazine/spOfficeDev/.

Internet Explorer and goes to the site; no need to even copy the address.

Want to download information from the Internet directly into an Office document currently in use? Picture this: You're creating an Excel worksheet and want to include the latest stock market figures. Your Internet connection is active; your worksheet is up on your screen. A couple of clicks on your toolbar sends your Web browser to a popular financial site, pulls the latest stock information from the site, and inserts it, instantaneously, into your worksheet.

With Office 97 you don't have to schedule that big meeting for your PowerPoint presentation; now you can post it on the World Wide Web or company intranet and your busy colleagues can view it at a time convenient for them.

Improvements in Access, the relational database management system, give you the power to share timely information across a workgroup or across the world. Because the Publish to the Web feature converts data and reports into HTML, you can create dynamic, interactive database pages and post them on a company intranet or the Web.

Whether at home or at work, thanks to the Web integration features included in Office 97, you can be more productive and take full advantage of the power of the Internet.

find it on the Web

HOT LINKS

Outlook 98	http://www.microsoft.com/magazine/spoutlook/
Office 97 Developer Edition	http://www.microsoft.com/magazine/spOfficeDev/
Office 97 general information	http://www.microsoft.com/magazine/spoffice1/
Office Update	http://www.microsoft.com/magazine/spoffice/

Always at Your Service: Office Update Web Site

With Office 97 you don't just get disks and that's the end of it. You get ongoing product information, updates, and support. The new Office Update Web site, makes it easier than ever to take advantage of these free ongoing product enhancements.

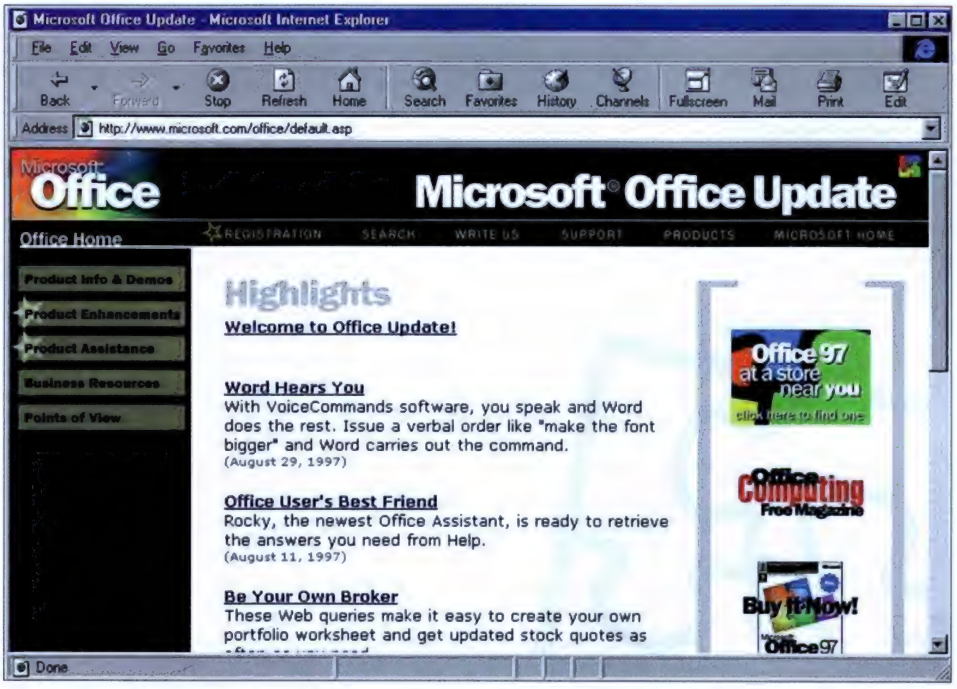
Microsoft has dedicated a newly designed and engineered Web site exclusively for Office 97 users. Now help is never more than a few clicks away; the Office Update site is a clearinghouse for Office 97 information, built with intelligent features that help users get more out of their products.

Once you ve installed Office 97 (or any of its applications, such as Word 97), simply register once on the Office Update site and then use it as often as you like to extend the capabilities and life of your program. Features available include:

- *new, free downloadable components that extend the capabilities of Office 97, including service packs, patches, and selected upgrades*
- *intelligent, in-depth help and product assistance*
- *the latest news on Office products*

Already, 200 new Office 97 components, including clip art, templates, wizards, sounds and new Office Assistants are ready for download, without cost. Additional components will be added for owner download on a continuing basis. Multimedia demonstrations and tutorials will be made available to make the Office 97 experience as effortless as possible. Registered users can also use the site to access wide-ranging help topics, as well as stay up-to-date through the Office News Service e-mail newsletter, which provides information on new products and new features through the Web site.

This breakthrough site makes Office 97 a product that grows with you. You can link to the Office Update site at http://www.microsoft.com/spoffice/.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Highlights
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(August 29, 1997)
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(August 11, 1997)
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A sample view of the new Office Update site on microsoft.com, where users can stay current on Office 97. Available to registered users, the site offers product news, assistance, and downloadable enhancements.

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Windows 98

Putting It All Together

Insider talk with the developers who built Microsoft's new operating system

by Joyce Thompson photography by Ryan McVay

EVERY MAJOR PRODUCT GROUP AT MICROSOFT PROBABLY HAS A CORRIDOR LIKE THIS ONE, where the occupant of each office, from one end to the other, owns one big idea or one chunk of innovative engineering. This particular hallway represents the spinal column—or, if you want to think of it in marketing terms, the features list—of Windows 98, the next evolution of the company's high-profile operating system. Our guide to the corridor is Tom Adams, who manages to seem easygoing while vigilantly keeping Windows 98 on track—a skill that makes him particularly well suited to managing the 400-plus testers who even now are hammering away on Windows 98 in search of bugs. Tom Adams hates bugs. As does the whole Windows team. This field trip is designed to clarify some of the alphabet soup of new technologies that make up Windows 98 and some of the visionary notions that make it nourishing. This visit is not exhaustive—the product's too big for that—but we hope you'll find it intriguing. As well as examining the backbone of the new operating system, we look at some of the bells and whistles it supports.

find it on the Web

HOT LINKS

Official news on Windows 98 — http://www.microsoft.com/magazine/spwindows98/

Windows 98 Spy reports — http://www.microsoft.com/magazine/spspy98/

Power to the peripherals

The office of Group Program Manager Tom Lennon, in charge of power management, is the first stop on our tour. "Should we tell them about Frankie?" Lennon asks. Frankie, it turns out, is their nickname for the laptop more formally known as Frankenstein, a monster specially created to "exercise the code."

Windows 98 poster boy Tom Adams leads a team of 400-plus testers striving to hammer the bugs out of the operating system.

"The developer got a wire and an external bus and started plugging in cards," Adams explains. Each card requires a different hardware device driver. "So many cards, they started falling over. Thirty-two in all, wasn't it?" Lennon nods.

Thirty-two cards. So many they had to be tied to the ceiling, making Frankie the Tester look like a machine in bondage. "The cool thing is, Frankie works." Both Toms look triumphant, as well they should. If Frankie can successfully allocate system resources across a 32-level bridge, you can plug a scanner or digital camera into a computer that's already running and Windows 98 will recognize, install, and configure it on the fly. You won't even have to reboot. It means that Plug and Play has come of age.

"Windows 95 was about creating the techniques," Lennon says. "It was huge. Some days the breadth of it hurt your brain." If Windows 95 was about defining the problem, Windows 98 is about refining the solutions. "The problems we're tackling now are deeper," Lennon says. "The hardware out there is more complex."

A crucial technology addressing that complexity is the Universal Serial Bus, a new architecture supported by Windows 98 that makes it virtually effortless to add peripherals to your PC. USB allows multiple devices, such as keyboards, scanners, and digital video cameras, to be *hot-swapped*, meaning you do not have to turn off the PC to add or remove a device, nor must you reboot in order for the PC to register the change. As well as being more adaptable, USB has a bigger capacity than previous buses: It can track 127 separate peripherals plugged into your computer, its 12-megabit-per-second transfer rate makes USB throughput a whole lot faster, and USB delivers electrical power as well as information across the bus. That last feature gives hardware manufacturers the option of designing many peripherals without power cords. If you plug a hub into your computer to hook up your collection of peripherals, you can put it somewhere easy to reach, like on your monitor, and stop crawling around on the floor in a tangle of wires.

As an example of the power of USB, take teleconferencing. With USB it's a simple matter to plug a digital camera into the top of your monitor so you can meet live on the Internet with your Aunt Fran or a business contact in Japan. And with USB Audio, you're dealing with digital audio right up to the second it reaches your speakers and turns back into sound; the electromagnetic thunderstorm inside your computer never has a chance to muck it up. For the first time, you can use your computer to both edit and play first-quality sound.

A Louisiana native son (check out the flag and Mardi Gras beads), Tom Lennon's gig is power management. "Windows 98 is about refining the solutions."

Help is here

Hard-working Frankie is still going strong with 32 drivers plugged into him, and that should mean fewer calls to tech support. But when you need it, help is here. In-depth and easy to use, Microsoft Online Help greatly simplifies your troubleshooting. The Windows Maintenance Wizard is a fully automatic way to keep your system in top-notch shape. Run this thing once and watch it schedule a suite of maintenance utilities at regular intervals. Now your computer takes care of its own tune-ups.

If you need to consult professionals by phone, sophisticated new diagnostics like the System File Checker and the Microsoft System Information Utility make it possible for a tech rep to figure out what's ailing your computer—and in a fraction of the time it used to take just to confirm that you were both talking about the same little green icon. A better definition of the problem means better fixes, faster. "Too often, in the past, it was easier to say, 'Just reinstall.' Now, the support folks can customize their advice," Lennon explains.

And here's another little bit of magic. It's called the Windows Update Wizard, and it uses the World Wide Web to inspect your home or office computer to determine if you're using the latest hardware

drivers and system files. If you're not, you simply download the current models. This is just one of several dramatic ways Windows 98 erases the boundaries between your system and the rest of the world. Internet integration means no computer is an island anymore.

Compatibility means drivers that work

The health of the hardware-software interface is very much the concern of Group Program Manager Wassef Haroun, a developer senior enough to merit an airy corner office. The room's stuffed so full of peripherals it looks like the storage closet at the Computers R Us Super Mall, except that many of these technoid toys, like the digital telephone and the USB hub, are prototypes, not real on-the-market products. Yet.

The big configurability nightmare, according to Haroun, happens when hardware designers try to write drivers for their products. It's not what they're best at, and they don't necessarily have the resources to test their code. "That situation creates a big space for innovation," says Haroun, "and an equally big space for error."

Many of the compatibility snafus that turned the 12 days of Christmas 1995 into one long all-nighter for the Windows tech support team were attributable to poor drivers authored by hardware manufacturers, even though Microsoft took the calls and the blame. The company has an ardent desire never to put its customers through installation hell again. "We're trying to help the hardware companies get out of driver writing," Haroun says, "so they can concentrate on what they do really well—product development."

Wassef Haroun's goal is to get hardware manufacturers out of the driver business, thereby eliminating many of the configurability snafus that bedeviled Windows 95.

Haroun's team is charged with developing a driver architecture that by design will be fundamentally more reliable and yield better performance. This architecture is common to Windows 98, and Windows NT® 5.0 (the company's industrial-strength operating system for networks), and the result is the *Win32® Driver Model*, or WDM.

Of course, it's a little more complicated than that. WDM architecture is modular; there's both a Class Driver and a Mini-driver. The Windows 98 operating system actually includes the Class Driver, which does most of the hard work. What this means: The driver is being tested right now as a part of Windows 98; the hardware manufacturers are pretty much out of the process and only have to write the far less complex Mini-driver. And because WDM is a common architecture across Windows 98 and Windows NT 5.0, hardware manufacturers can write cross-platform drivers; in the long term this could mean less development work and lower cost to consumers.

Deciphering the Code

A Windows 98 Glossary

Digital audio

The reproduction and transmission of sound stored in a digital (binary) format. Most compact disks are recorded in digital audio, as are PC sound files.

DVD

A new optical disk storage system that, unlike a CD-ROM, can store data on both sides. The DVD can store far more data than a CD-ROM, approximately 4.7 GB today, and eventually, when double sided and double density, 17 GB per disk. Thanks to video compression, the DVD can hold full-length feature films. DVD players available now can still play CD-ROMs, as well as the burgeoning selection of feature films on DVD. A recordable version, DVD-R, should be available soon.

32-bit File Allocation Table

The FAT of the MS-DOS™ format program contains information about which parts of a hard disk are in use, which are not, and which cannot be used because they are faulty. FAT 32 is a new version of the Windows 95 FAT and can support larger disks and more efficient storage.

IEEE 1394

IEEE stands for the Institute of Electrical and Electronics Engineers, the American association for professional electrical, electronic, computer, and production engineers. The number 1394 represents an industry standard for a new breed of high-speed serial bus connectors capable of connecting computer peripherals and audiovisual devices. Cables and connectors employing IEEE 1394 can carry digitized video and audio quickly, reliably, and inexpensively between a variety of systems and devices. It's hot-pluggable, so you can add and subtract peripherals easily at any time without rebooting your system.

Multicast

A multiple broadcast, such as teleconferencing, transmitting information both ways between several designated participants at one time.

Multiple monitors

Windows 98 and some applications now support more than one monitor per hard disk, which means, theoretically, that you can show a different application running in each monitor or display an entire document such as a spreadsheet across several monitors at previously unheard-of magnification.

Watching TV on your PC

Making the PC into a broadcast receiver is based on a very simple, very powerful idea. Video, audio, Web pages —as long as any of it is in digital form, it's all just bits, according to System Developer Sriram Rajagopalan. It can all be transferred using the same digital pipe. A television signal, with its vertical blanking interval, makes a perfect pipeline for digital information. Very few of us maintain a dial-up network connection 24 hours day or anything close to it, but the television signal never sleeps, and except during those times you're watching *Seinfeld* reruns or the NBA playoffs, it can be continuously, quietly downloading bits. This *multicast*—data sent from one source directly to many receivers through a continuously open digital pipeline—is what the technoliterati call *true push*. The server does the pushing. The client hard drive receives the data, whatever it might be.

Rajagopalan shows us a 31-inch TV monitor hooked up to a formidable CPU complete with a TV tuner card. What you see on screen is essentially a Web page with video embedded in it via dynamic HTML. About one-third of the screen is dedicated to television programming, the rest is available for other, more Web-type information and interaction. "What we've got up there now is just a placeholder," Rajagopalan explains. "But we've got teams working with producers to enhance their programming for the medium." Soon enough, he figures, today's couch potato will sit upright and be engaged.

Whether video, audio, or Web pages, it all boils down to bits, according to Sriram Rajagopalan. In his own time he works with far stiller photographic images.

Your VCR may become obsolete

With six patents to his name for innovations in information storage, it's no surprise that Bill Parry is fascinated by the advent of the *DVD*. The DVD isn't just the future of home entertainment, nor just the coolest thing since cream cheese; it's the ultimate in data compression technology—at least for now. *One* DVD equals 11,500 floppy disks. It can hold an entire interactive encyclopedia, complete with several hours of high-quality, full-screen video; a musician's life work, outtakes and baby pictures included, in high-fidelity surround sound; or your favorite movie subtitled in French, Portuguese, and Urdu. Both of a DVD's two bonded layers have a storage capacity of 4.7 gigabytes. Future DVDs will be double sided and double density, which will result in a storage capacity of 17 GB. (Fear not, new PC owners: Today's DVD drives will be able to read those new DVDs.)

Many see DVD as the successor to CD-ROM. With video quality as good or better than television, DVD paves the way for an explosion of interactive multimedia. Needless to say, PC gamers are eager to discover what revolutions in

Plug and Play

A PnP system automatically detects and configures add-ons such as sound cards and joysticks. The Windows 95 operating system often required a special BIOS chip, which controlled the keyboard, display screen, and disk drives. Not so Windows 98, which employs true Plug and Play meaning all you have to do is plug in your peripheral devices and start playing.

Still imaging

Still imaging means just that: a single image taken from a single frame of a film or video, or a single image captured by a digital camera. Of course, when you combine a series of still images, you ve got video (this is how USB videoconferencing cameras work). Additionally, images taken with a digital camera can be transferred right to your computer for a variety of uses, including posting to a Web page; sending through e-mail; or pasting into a PowerPoint presentation. Since they re digital, the images can easily be manipulated, enhanced, and printed.

Universal Serial Bus

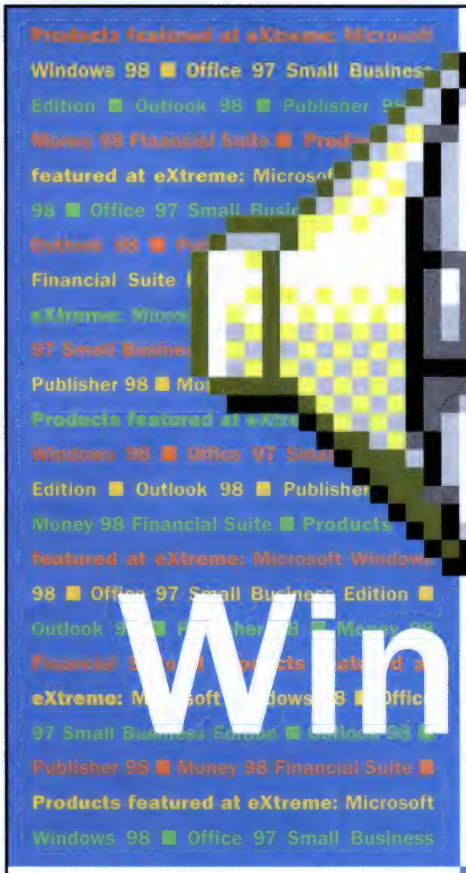
A bus is a collection of wires that transmits data from one part of a computer to another. A variety of buses are used by your computer, including the internal bus that connects the internal computer components to the CPU and main memory; the expansion bus that enables expansion boards to access the CPU and memory; and the serial bus that connects hardware and peripherals such as printers, modems, and joysticks to your computer.

The Universal Serial Bus, developed by a consortium including Intel and Microsoft, is capable of connecting 127 different peripherals to a computer using a single type of connector. The USB allows hot-swapping of peripherals, meaning you can add them without rebooting the system.

Win32 Driver Model

A hardware support standard for both Windows 98 and Windows NT 5.0. WDM allows for compatibility across the two operating systems for newer peripherals such as USB and IEEE 1394–based devices, including keyboards, videoconferencing cameras, scanners, joysticks, digital audio speakers, mice, and cameras.

For the latest official news on Windows 98 check out http://www.microsoft.com/magazine/spwindows98/.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10:00 A.M. • Event Code: 16106
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10:00 A.M. • Event Code: 16119
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10:00 A.M. • Event Code: 16121
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10:00 A.M. • Event Code: 16107
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FL **Pinellas Park: UA Movies at Pinellas Park**
1:00 P.M. • Event Code: 16129
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IL **Shaumburg: Woodfield Cinema 3-4**
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IN **Indianapolis: UA Galaxy (Castleton)**
1:00 P.M. • Event Code: 16099
LA **Baton Rouge: Siegen Village Cinema 10**
12:00 P.M. • Event Code: 16123
MA **Framingham: Framingham 14**
1:00 P.M. • Event Code: 16108
MI **Novi: UA Movies at Twelve Oaks**
1:00 P.M. • Event Code: 16101
MN **Roseville: UA Pavillion Place**
12:00 P.M. • Event Code: 16105
MO **St. Louis: Westport Cinemas**
12:00 P.M. • Event Code: 16133
NH **Hooksett: Hoyt's Canad Central Park II**
1:00 P.M. • Event Code: 16111
NJ **Paramus: Route 17 Triplex**
1:00 P.M. • Event Code: 16113
NV **Las Vegas: UA Green Valley Cinemas**
10:00 A.M. • Event Code: 16122
NY **East Meadow: UA Meadowbrook**
1:00 P.M. • Event Code: 16114
New York: United Artists - Times Square
1:00 P.M. • Event Code: 16112
Syracuse: Carousel Cinema 19
1:00 P.M. • Event Code: 16115
OH **Cleveland: Cleveland State University Main Classroom Building/Auditorium**
1:00 P.M. • Event Code: 16100
OK **Tulsa: Hollywood Eton Square Cinema**
12:00 P.M. • Event Code: 16126
OR **Beaverton: Westgate 5 Cinemas**
10:00 A.M. • Event Code: 16117
PA **Philadelphia: UA Grant Plaza**
1:00 P.M. • Event Code: 16104
RI **Warwick: The Warwick Mall Cinemas**
1:00 P.M. • Event Code: 16109
SC **Columbia: Carmike 14**
1:00 P.M. • Event Code: 16131
TX **Dallas: UA Prestonwood**
12:00 P.M. • Event Code: 16124
El Paso: UA Bassett 6
11:00 A.M. • Event Code: 16125
Houston: Tinseltown Westchase
12:00 P.M. • Event Code: 16127
San Antonio: Embassy Oak Theatre
12:00 P.M. • Event Code: 16128
VA **Fairfax : UA Fairfax Town Center 10**
1:00 P.M. • Event Code: 16102
Richmond: UA Chesterfield Cinemas
1:00 P.M. • Event Code: 16103
WA **Redmond: Bella Bottega**
10:00 A.M. • Event Code: 16116

CANADA:
BC **Vancouver: Robson Square Conference Centre**
10:00 A.M. • Event Code: 16135
ON **Toronto: Capitol Cinema**
1:00 P.M. • Event Code: 16134

gaming this technology could inspire.

You might mistake Parry for a basketball player until he starts explaining bi-directional motion compensation—a powerful video compression technology that gets rid of high frequencies and eliminates redundant images. If the background is exactly the same in 500 successive frames, why not store that information once instead of 500 times? That's the kind of common-sense question it takes a very smart mind to ask and one that underlies the DVD revolution Parry's been fomenting among hardware manufacturers. He wants to make sure that the next computer you buy comes with a DVD drive.

A revolutionary in the field of information storage, Bill Parry sees DVD as the high-power successor to CD-ROM.

"I have evangelized interfaces and I've taught the hardware people how to write drivers," Parry says. "We've got a dozen vendors so far." The width of his grin reflects the breadth of Parry's enthusiasm. "I've enjoyed this job so much," he says.

Information on a single page? Or single screen? Old technology, according to Clark Sealls. "After you've tried multiple monitors, you won't ever want to use a single display again."

Multimonitor evolution

"After you've tried multiple monitors, you won't ever want to use a single display again. You feel trapped." That's Clark Sealls speaking, yet another Windows 98 developer who truly loves his feature. Come to think of it, who wouldn't love having e-mail on one screen, an Excel spreadsheet open on two more, and a Word document in progress or maybe a Web page displayed on number four? The average user, according to Sealls, tends to use each monitor as one maximized window and often has several applications open at one time. Advanced users, like graphic artists and media editors, tend to explore the possibilities in different ways.

"You can control the palette, color depth, and resolution separately. The taskbar is relocatable. Applications can be written specifically for multiple monitors." Information tumbles out so fast one wonders if Sealls doesn't secretly yearn for multiple mouths to match his monitors. Writing code to make the CPU accept more than one display device turned out to be a tricky undertaking; right now, one screen has primacy, and the technology's dependent on VGA. But all that will change soon enough.

The welter of possibilities suggests that technological advancements might exert a kind of evolutionary pressure on the human species: *Homo multimonitor* might be a slightly different creature, with a slightly different consciousness, from today's *Homo sapiens*. That question, of course, is moot. What is certain is, given front and side views and exciting new applications that give us both views at the same time, we're going to be much better gamers.

FAT 32 and a fast start

When it comes to power acronyms, FAT 32 is one of the coolest around. It stands for 32-bit File Allocation Table, and it spells a dramatic increase in the efficiency of your hard drive. First of all, it lets you format up to a whopping 2 terabytes (that's *2,000* GB) as a single drive. With the older FAT 16 file system, you could not create a partition larger than 2 GB, meaning that if you had a 4 GB drive, for example, you had to partitions it into at least two separate drives (C: and D:) even though it was a single hard disk.

A fast start is as critical to your PC as it is to David Alles's favorite sport of water polo. His team shaved over 20 seconds off the average hardware BIOS boot time.

Second, FAT 32 uses disk space more efficiently than conventional FAT 16. Ultimately you can fit roughly 20 to 30 percent more data on a FAT 32 partition that a FAT 16 partition. FAT 16 typically stores everything in 32K clusters; even if the file you want to store is only, say, 7K, it still takes up 32K, leaving 25K sitting there idle and inaccessible. Multiply this by the thousands of files that exist on most machines, and you end up with a lot of wasted space. With FAT 32, information is typically stored in tidy 4K clusters (on partitions up to 8GB—after that information is stored in clusters of 8K). So now, with FAT 32, that 7K file uses two small 4K clusters, with a residual space of only 1K. In the end, you wind up with more free space available on your hard drive.

The intelligent cache use of FAT 32 means an operating system can now allocate and deallocate memory on the fly instead of keeping it tied up in one static, monolithic cache. You may never have to listen to your CPU grinding in pain and confusion again.

You may never again have time to get a cup of coffee and run to the bathroom while your system starts up, either, once new PCs take advantage of the new Fast Boot BIOS. For this innovation, you can thank team leader Dave Alles. As he fiddles with a yellow water polo ball, Alles explains how his team shaved 20.8 seconds off the average hardware BIOS boot time in the last six months.

"All but one in a million times, the files are just fine," Alles says. "So we inserted some flags we can write to. If they say nothing's wrong, the system moves on instead of laboriously checking every file."

Alles's team concentrated on the three areas where most users lose the most time and where they would see the most benefit from increased speed—at system start up, shut down, and the biggest drag of all, when applications start. Profiling the code that underlies these events in Windows 95, the team found that processor speed and amount of RAM had negligible effects on speed. Reading doesn't take much time. The big culprit was the time the system spent looking around the hard drive for all the files it needed. What the performance team did was add some intelligent logic to the defrag utility so it could determine how applications load and then rearrange all the parts of an application sequentially in a single contiguous space on the hard drive to minimize seek time. Further, Alles persuaded all the development leads on the Windows 98 team to devote 20 percent of their time to performance issues.

Does it pay off? Windows 98 starts Photoshop in just 4.5 seconds, a job Windows 95 needs more than three times as long to accomplish. Most applications will show similar gains.

George Allen's testers use a library of 22,000 applications to cast about for compatibility glitches in Windows 98. Allen doesn't want to let any of them get away.

The last word

We'll give the final word to George Allen, who's in charge of software compatibility testing for Windows 98. His test team maintains the largest software library in the world—at 22,000 applications, it's even bigger than Microsoft's corporate software library. The test library gets 20 to 25 new additions, many of them games, each week. Allen's teams test 250 applications at two-week intervals to determine the stability of a build, and another 1,000 against each version of the beta. Using a holistic approach, Allen says, is the only way he has a prayer of getting the job done.

And what's it been like working with the Windows 98 team? "I've been in the industry for 21 years," Allen says. "It used to be, every year I'd meet two or three people I considered really brilliant. Since I've been working on this team, the count is up to six or seven every week. Put it this way: I get offered interesting new jobs all the time, but I don't take them. I plan to retire from this team."

Psst! Wanna know more?
We got the scoop on Windows 98 everything you need to know. Read the Windows 98 Spy reports on the Personal Computing site. We update it regularly. But keep this between us. http://www.microsoft.com/magazine/spspy98.

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step-by-step
Get the most out of the Internet

BY JANNA SILVERSTEIN

Expedia.com: Start Your Travel Here

Thanks to the Microsoft Expedia.com and Sidewalk.com Web sites, you can work with a travel agent who understands all your travel needs: *you*.

Planning your own trip used to mean a lot of consulting: travel agents, airlines, guidebooks, and car rental agencies. Now you can go to one place to plan nearly every detail of your trip—Expedia.com. And for locating restaurants, museums, and other local attractions, turn to the Microsoft Sidewalk™ online city guide, now available for 10 major cities.

With Expedia.com, the award-winning online travel service, you can find low-priced airline tickets, convenient hotels, and economical rental cars—all at no charge. With the Expedia travel partners, you can now also book bed-and-breakfast rooms, package vacations, and train tickets.

Register for free membership

Membership registration and travel planning have been streamlined on Expedia.com.

Step 1. At the Home page, http://www.microsoft.com/magazine/spexpedia/, click **Travel Agent** to register as a member. Membership offers complete travel services, as well as storage of all your personal travel planning and preferences. If you're already a member, skip registration and head right over to the Sign In page.

Step 2. Click the **Registration** link.

Step 3. Provide your name, e-mail address, and other basic information; create a Member ID and password.

Step 4. Continue until you see the Travel Agent Welcome page.

Book your air travel

On the Welcome page you'll find access to the Flight, Car, and Hotel Wizards—direct connections to the same computer reservation system used by professional travel agents. No middleman needed here; you can start planning a flight right away. We'll use Expedia.com to book a trip from Seattle to New York City.

Step 1. Click the **Flight Wizard** icon.

Step 2. Supply information about your departure and destination points, your travel dates, the number of travelers in your party, and your preferred class of travel. Click **Continue** to begin your search.

Step 3. Review the resulting list of flights and select a fare by clicking the **Choose and Continue** link under the price.

Step 4. The Flight Details page displays the flight length, stopovers, and the rules and restrictions of the fare you've chosen. If these are acceptable, click the **Reserve** button.

Step 5. To purchase your tickets, click the **Reserve and Purchase** button, and then click **Continue**.

Step 6. Enter your personal preferences such as seat location and meal type. On some flights, you can select the exact seat you want using the Expedia.com Seat Pinpointer.

Flight Wizard
Seat Pinpointer
Below you'll find a map of the seats for your flight. First select the name of the traveller for whom you are choosing a seat in the list at the left, then click on the seat you are interested in. Use the Next Flight and Previous Flight buttons to switch between flights. When you've finished choosing seats, click Continue. For tips and more information, click Need Help? in the upper left-hand corner
UNITED AIRLINES
Flight 1938: Seattle to New York
Aircraft: Boeing 757-300
Travelers:
Legend
Previous Flight
Continue
Cancel
Microsoft Expedia.com

Step 7. If the Seat Pinpointer is available for your flight, you'll see an interactive floor plan of the airplane. Select your seat

continued on page 26

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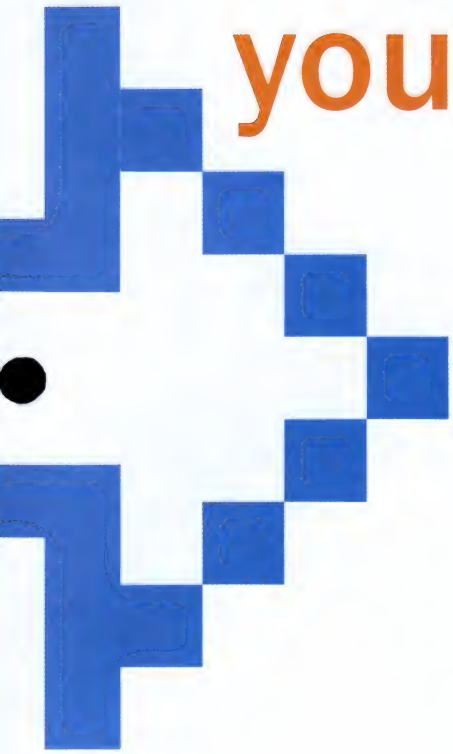

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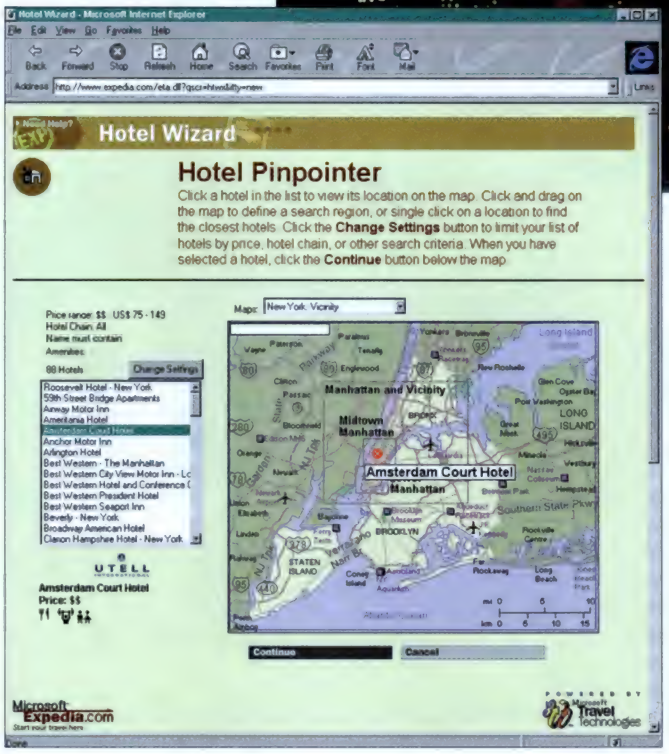
continued from page 23

by clicking on any vacant seat and then clicking **Next Flight**. Proceed until each leg of your trip has been displayed, and then click **Continue**.

Step 8. Some airlines on Expedia.com offer electronic ticketing (e-tickets), which eliminates the hassle of paper tickets. Watch for the Billing and Delivery screen to see if e-tickets are available and select this option if it suits your needs. Supply your address and credit card information to complete your purchase, and then click **Purchase**. When your purchase is complete, a confirmation screen will appear.

At the bottom of the confirmation screen, you have the option of viewing your itinerary. On the itinerary page you can search for a hotel room or rental car for the trip.

You can always search for flights and make a flight reservation only, or simply save the flight information for future reference. Expedia.com saves information on up to 10 itineraries so you can book them when you're ready to travel.


Hotel Wizard
Hotel Pinpointer
Click a hotel in the list to view its location on the map. Click and drag on the map to define a search region, or single click on a location to find the closest hotels. Click the Change Settings button to limit your list of hotels by price, hotel chain, or other search criteria. When you have selected a hotel, click the Continue button below the map.
Map: New York Vicinity
Manhattan and Vicinity
Amsterdam Court Hotel
Continue
Cancel

Reserve your hotel room

The Expedia.com Hotel Directory includes more than 38,000 hotels.

Step 1. From the Itinerary page, click the **Add Hotel** link, or click the **Hotel Wizard** icon on the Welcome page.

Step 2. If you click the Add Hotel link, Expedia.com supplies your destination to the Hotel Wizard. If you click the Hotel Wizard icon, you'll need to name the city you're going to. You can also choose whether to view your search results in a map or a list. Once you're ready, click **Continue**.

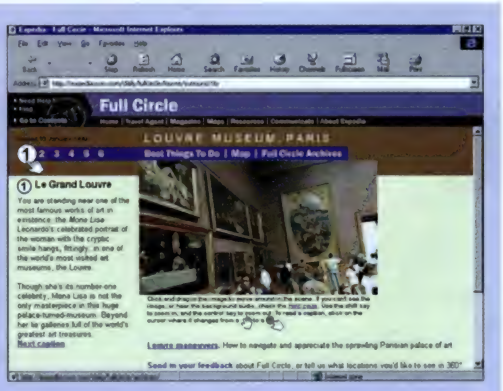
Step 3. If you've chosen the mapping option and maps are available, you can use the Hotel Pinpointer to locate hotels by clicking the map list. You can then narrow your choices by using the Maps drop-down list. In midtown Manhattan alone, you'll find 131 hotels. Select a hotel and click **Continue**.

Step 4. The Hotel Wizard presents a summary of information about that hotel. This page allows you to check room availability, and if you started your search at your itinerary, your dates of travel and the number of travelers are already filled in. Simply click **Check Room Availability**.

Expedia Brings You Full Circle and More

Two new areas on Expedia.com help you prepare for both routine trips and dream vacations: Resources and Expedia Magazine. On the Expedia.com home page at http://www.microsoft.com/magazine/spexpedia/, click the Resources link for access to the World Guide, which offers information on 300 destinations, plus links all over the Web. When you click the Magazine link, you'll find the feature that won Expedia.com raves from Business Week magazine among others: Full Circle. With its 360-degree panoramic views of faraway places and its detailed articles, it gives you a taste of travel possibilities like few other sites on the Web.

Another magazine feature, Briefs and Bargains, gives you the latest news about airline sales, special events, travel industry news, and more. The EXPerts columns offer insider advice on all sorts of important travel issues and exciting destinations.



Step 5. Review the resulting room list and select the room that most closely matches your needs by clicking the room rate.
Step 6. The Hotel Room Details page displays all the necessary information—options, rules, and restrictions—of your chosen room. If these are acceptable, click **Reserve**.
Step 7. Provide information about your personal needs such as special room options. Continue the process until you see the Billing Information page.
Step 8. Supply credit card information to reserve the room, and then click the **Reserve** button.

Just like the Flight Wizard, the Hotel Wizard saves hotel information for you if you don't finalize your travel plans.

Rent a car

You can also rent cars online with Expedia.com using a simple procedure similar to what you used with the Flight Wizard. Because New York has such an extensive and reliable mass transit system, most travelers to this destination forego a rental car in favor of their feet or, of course, a New York cab ride.

Microsoft: a Full-Service Travel Resource

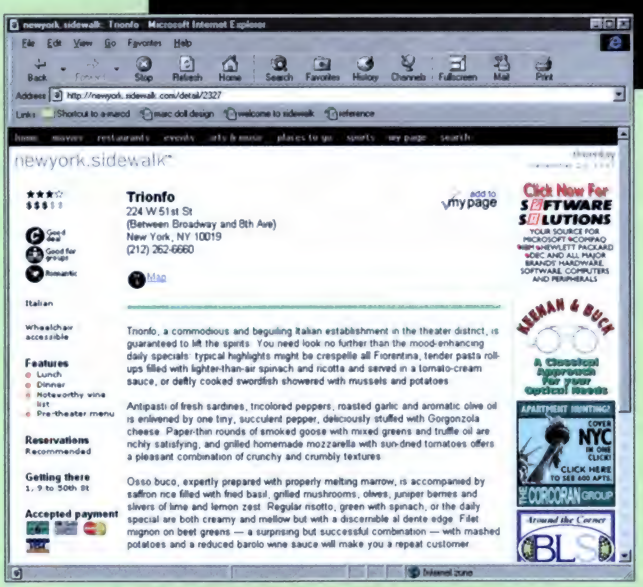
***Sidewalk**, Microsoft's online city guides, by virtue of their timeliness and accessibility, offer more complete information than guidebooks can. The site includes information for 10 cities Boston, Denver, Houston, New York, San Diego, San Francisco, Seattle, Twin Cities, Washington D.C., and Sydney, Australia and the number is on the rise. Created for use by people who live in those cities, and updated daily, Sidewalk offers information that can make an out-of-towner feel like an insider, with tips on where local residents go instead of only the tourist highlights.*

Sidewalk can make your day

I'm sitting in our hotel room in Manhattan looking out at the city. My husband, Adam, and I have managed to do so much in just a couple days. Yesterday morning, we used my laptop to log on to Sidewalk at http://www.microsoft.com/magazine/spsidewalk/. Back home, we used Sidewalk to create a customized page of the New York attractions that interested us the most, but we've also been using the site constantly since we've been here; it's supplied us with information we could never have found in a guidebook. It's updated every day with events, exhibits, a restaurant guide, movie and theater listings, and sports.

Adam had his heart set on going to a ball game. On the Sports page, he chose the Show Stadiums and Racetracks option and easily located information on Yankee Stadium, including which subways to take, as well as game time and ticket prices.

Since I couldn't bear the thought of spending an afternoon in New York sitting in a stadium, I used Sidewalk to explore my alternatives. When I checked the Museum of Modern Art, I discovered I could catch an exhibit of portraits by one of my favorite painters. And of course Sidewalk provided a map so I could find the museum easily. I even found a route that let me stroll past Radio City Music Hall and Rockefeller Center and peek into Saint Patrick's Cathedral and Cartier on my way.



Use Sidewalk to find a restaurant by location, price range, or rating.

After a nap we decided to go to dinner and catch a Broadway show. First we clicked the TKTS link on the home page to find out which shows were offering half-price tickets today. We chose our top three preferences and made the final decision based on seat availability when we got to Duffy Square.

Meanwhile, we had customized our search for a restaurant near the theater district by clicking the Find a Restaurant link on Sidewalk. We used the drop-down lists to narrow our search based on neighborhood, price range, type of food, and number of stars in the rating. We decided on Trionfo, since we've both been dying for Italian food since we got into town, and it was convenient to the shows that interested us. Besides, Sidewalk recommended the restaurant as a romantic spot for a dinner. It was a great way to end the day.

tell me how

Answers to your questions about how to make the most of Microsoft products and your PC

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INTERNET AND E-MAIL

How can I update my Favorites list?

Internet Explorer

Q How can I remove or change Web sites that I added to my Favorites list? Some Web sites I'd like to remove; others have changed locations.

Steven Pettyjohn
via Internet

A You didn't mention which version of Microsoft Internet Explorer you're using, but here are a few methods for both Internet Explorer 3.0 and 4.0.

Internet Explorer 3.0 and 4.0

Use the Organize Favorites command to delete sites you no longer visit.

To delete a site from your Favorites list:

1. On the **Favorites** menu, click **Organize Favorites**.
2. Select the site you want to delete, and then click **Delete**.

If a favorite site has moved, the quickest way to update might be to delete it from your list and then add the new location. Or, you can change the Web address using Organize Favorites.

To modify a favorite site:

1. On the **Favorites** menu, click **Organize Favorites**. (See figure 1).
2. Select the site you want to update, and right-click it.
3. Click **Properties** and then click the **Internet Shortcut** tab.
4. In the Target URL field, type in the revised URL.

You can also use **Organize Favorites** to group similar sites in folders so they're easier to find on your **Favorites** menu. To do this:

1. On the **Favorites** menu, click **Organize Favorites**.
2. Click the **New Folder** icon to create a folder.
3. Name the new folder.
4. Drag appropriate favorites into the new folder.
5. When done, click **Close**.

When you click **Organize Favorites**, you'll see arrows next to the folder you created. Click the arrow to see the sites within each folder. You can even create subfolders. You'll notice your Favorites list is a lot shorter!

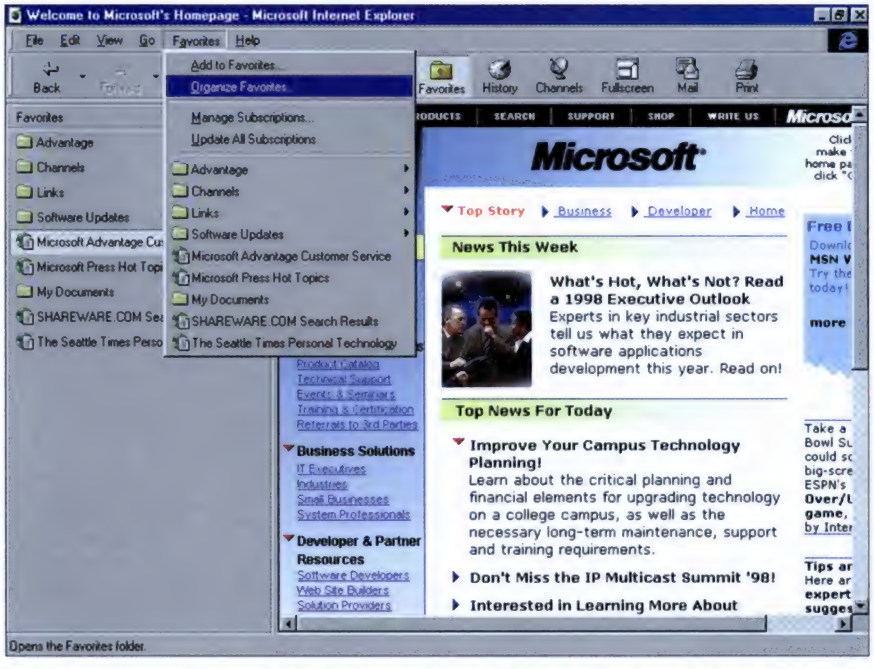
Internet Explorer 4.0

You can use the methods just described in Internet Explorer 4.0, but the Favorites menu has been improved in version 4.0 so you can more easily organize, add, and update your favorites.

You can now drag and drop selections within the **Favorites** Explorer Bar to display them in any order you choose without having to click Organize Favorites. Previous versions of Internet Explorer always arranged favorites in alphabetical order. You can drag and drop within the Favorites menu as well.

You can drag selections to add a favorite link to your browser's Favorites menu or to the Start menu. Click the icon to the left of the URL in the address bar and drag it to the **Favorites** menu in your browser. Or drag the URL to the **Start** button to create a shortcut on the Start menu. You can also drag and drop the shortcut within the Start menu.

continued on page 30


Welcome to Microsoft's Homepage - Microsoft Internet Explorer
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Opens the Favorites folder.

Figure 1. Use the Organize Favorites menu option in Internet Explorer versions 3.0 or 4.0 (shown above) to update or delete Web sites.

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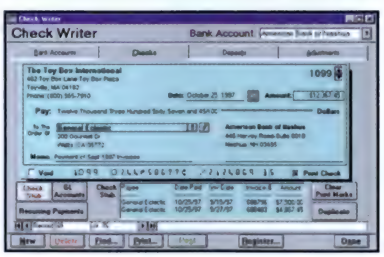

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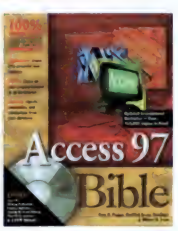

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Circle 104 on the Reader Response Card

With Internet Explorer 4.0, you can also subscribe to a favorite site, which means that when your favorite sites change you'll be notified by a gleam in the icon or an Outlook Express e-mail message. You can even choose to have content downloaded to your PC for offline browsing.

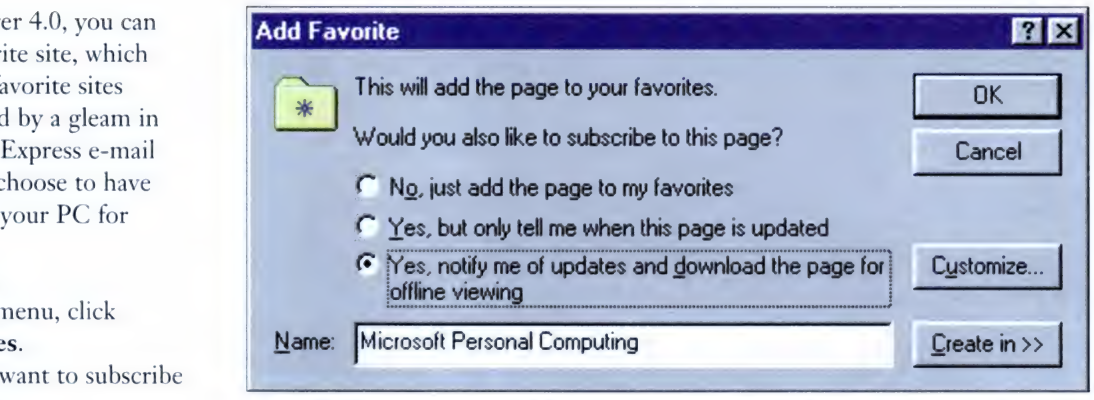
To access these options:

1. On the **Favorites** menu, click **Organize Favorites**.
2. Select the site you want to subscribe to and right-click it.
3. Click **Subscribe**.
4. You can then choose between being notified that the site has changed and having the updates downloaded to your PC.

These options are also available when you add a site.

To add a site:

1. Go to the site you want to add.
2. Click **Add to Favorites** on the **Favorites** menu.
3. You can now choose your subscription options (see figure 2).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Yes, but only tell me when this page is updated
Yes, notify me of updates and download the page for offline viewing
Name:
Microsoft Personal Computing
OK
Cancel
Customize...
Create in >>

Figure 2. In Internet Explorer 4.0 you can now subscribe to a Web site, which means you'll be notified whenever the site is updated.

Will upgrading replace my favorite URLs?

Q If I upgrade from Internet Explorer 3.0 to Internet Explorer 4.0, will my favorite URLs be saved? If not, is there a way of saving a complete list? When a hard drive recently went bad, I discovered a new meaning of frustration while trying to recall all those special addresses!

Michael McKnight
via Internet

A Your lists of favorites will be unchanged by the upgrade. After installing Internet Explorer 4.0, you'll be able to access them just as you did with Internet Explorer 3.0.

Favorites are actually stored as shortcuts in the folder Windows\Favorites. Each URL, Quick Link, or channel you mark as a favorite is saved as a separate file. To make a copy of your favorites, simply back up these files as you would back up any other important data:

1. Open **My Computer** and browse to the folder Windows\Favorites.
2. On the **Edit** menu, click **Select All**, and then click **Copy**.
3. Browse to the disk or folder you'll use for a backup, and select **Paste** from the **Edit** menu.

What do I put in the SMTP and POP fields?

Q I am unable to use Internet Mail. The error message reads "The mail server name cannot be found. Check connections." Can you tell me what to type in the fields Outgoing Mail (SMTP) server and Incoming Mail (POP3) server? Also, where can I find information on these connections? The support area on your Web page for Internet Mail does not give much detail on these entries.

James Gregory
via MSN

A Your Internet service provider assigns your Incoming and Outgoing Mail servers, so we can't tell you exactly what to type in those fields. Contact your ISP or check the information provided when you established your account to find the names of the servers that handle your e-mail. Incoming and outgoing mail might use the same server, and the name will likely follow the form *mail*.myprovider.*com*, where *myprovider* is the domain name included in your e-mail address. The other common name form is *pop*.myprovider.*com*.

SMTP and POP3 are the most common protocols for sending and receiving mail over the Internet. SMTP (simple mail transfer protocol) is used for communication between Internet hosts. SMTP assumes that the addressee is available at all times to receive messages; since most home users don't have perpetual connections, you rely on your ISP's mail servers to receive incoming mail and hold it until you log on.

When you log on to check your mail, your Windows mail client (for example Internet Mail, Exchange, or Outlook) uses POP3 (post office protocol version 3) to retrieve mail from your mailbox on the server and store it in your Windows Inbox.

Some servers use the IMAP protocol, which allows you to download only the message headers and to read messages stored on the server, without downloading them to your Windows Inbox. If your ISP uses IMAP instead of POP3, it should be mentioned in the info where the ISP provides the server names; if you can't find the information and think your ISP is using IMAP, ask about it. When dealing with IMAP, you'll want to select IMAP under Server Type when you set up your Internet Mail service.

APPLICATIONS

How can I add an Office 95 template to Office 97?

Q My computer at work has Microsoft Office 97 Professional loaded on it. At home I had Microsoft Office 95, and I upgraded to Microsoft Office 97. On my home computer, Microsoft Excel includes an Office 95 Loan Template, but my office computer (with Microsoft Office 97) doesn't have that template. How can I access the Office 95 Loan Template for my office computer?

Janet Trent
via Internet

A The templates you used in Microsoft Excel 95 are compatible with Excel 97. To use the Excel 95 Loan Template at work, simply copy it to a disk and transfer it to the other computer.

Templates created for use with Excel for Windows 95 won't take advantage of the many new features of Excel 97, however, so you might want to look for templates designed specifically for Excel 97. The Spreadsheet Solutions templates, which include an excellent loan template, have all been enhanced to make use of the forms capabilities in Excel 97 and features like merged cells, indented and rotated text, and data validation.

You can download a number of Excel 97 templates from the Microsoft Web site at http://www.microsoft.com/magazine/spofficefreestuff/.

How can I install a French dictionary in Word 97?

Q I have just upgraded to Microsoft Office 97. I enjoy the spelling checker and would like to use the French dictionary as well as the default U.S. English dictionary. Try as I may, I cannot install the French dictionary. I have followed the online help, but it doesn't work. I'd like to use Microsoft Office to its fullest capacity.

Harold Vellins
via Internet

A First, you need to be sure the dictionary you're installing is designed for Word 97. Although Word 97 includes powerful multilingual functionality, foreign-language dictionaries that you used with Word for Windows 95 or Word 7.0 won't work with Word 97.

We suggest you check out the Microsoft Proofing Tools by Alki Software Corporation. This add-on is fully compatible with Office 97 and enables you to check spelling and grammar in many languages, including European and Canadian French. To order the software or read more about it, go to http://www.alki.com/.

Why does pressing the TAB key reset my margin?

Q I just installed Word 97 and something weird is happening now. When I press the TAB key, sometimes it resets my left margin. Why?

Elise Tobler
via America Online

A What you call weird, we call a feature. Word 97 lets you set several such features that apply formatting automatically as you type. While these features can save you a lot of time while creating documents, if you're not expecting the changes, they may indeed seem a little weird.

The option you've discovered applies a left indent to the first line of a paragraph when you press TAB at the beginning of

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that paragraph (rather than inserting a tab character, as you might expect.) You can remove the indent by pressing BACKSPACE.

By default, this option is enabled when you install Word 97, but you can easily turn it off.

To do this:

1. On the **Tools** menu, click **Options**, and then click the **Edit** tab.
2. Clear the **Tabs and backspace set left indent** check box (see figure 3).

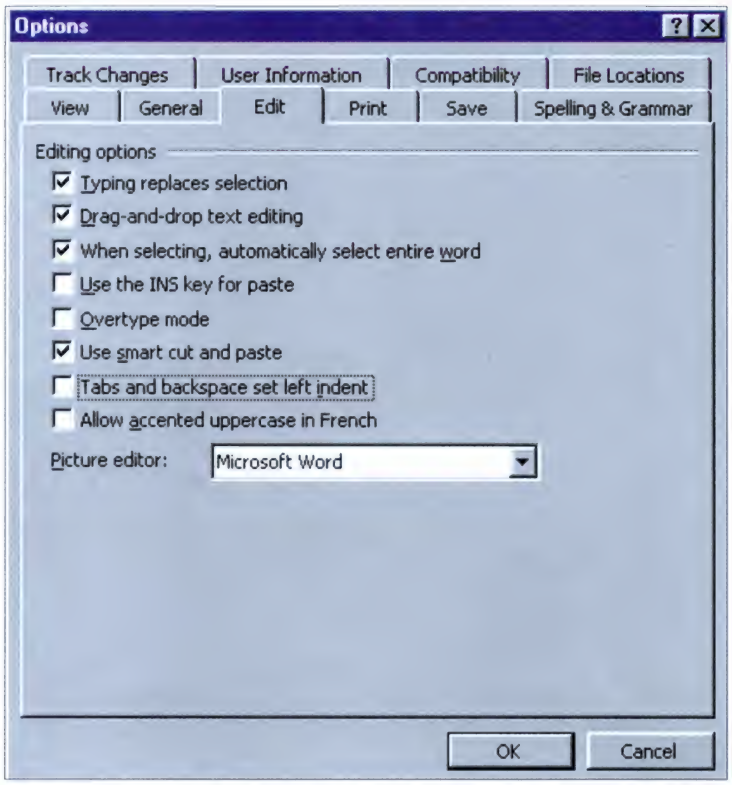

Figure 3. To override the Word 97 automatic tab feature, clear the Tabs and backspace set left indent check box.

DESKTOP AND SYSTEM

Microsoft Windows 95

How do I set the default folder views to list modes instead of icons?

Q I have a noncritical problem that has bugged me ever since I replaced my Macintosh with a system running Windows 95. I like to have the contents of folders (with the exception of the desktop), displayed in the list mode, and I select that option in the View menu accordingly. However, the next time I boot up, the display is back to icons. It is really a pain when I have a lot of files and other folders in a folder. What is causing this? How can I correct it?

Frank Lill
via Internet

A There could be two causes. First of all, this is a good opportunity to remind everyone to follow the proper shutdown procedure. Changes you make to your views are stored in the Windows Registry as Explorer preferences. The settings are saved at shutdown, so if you shut down improperly (for example, just turn your computer off instead of using the Shut Down command on the Start menu), options you set during the current session won't be saved, and your views will return to their defaults the next time you start Windows 95. Assuming you carefully shut down and wait until you see the message telling you it's safe to turn off your computer, you'll need to look at a couple other settings to be sure that Windows remembers your views.

For systems running Windows 95 and a *full install* of Internet Explorer 4.0

If you have Windows 95 with all the Internet Explorer 4.0 desktop usability installed, you then have several options that can affect your folder views. Here's what you do:

1. In **My Computer**, on the **View** menu, click **Options**.
2. Click the **View** tab.
3. In the frame titled Folder View, you are given the option "You can make all your folders look the same." Select **Like Current Folders,** which will make all folders look like your present folder. Or reset all folders to their default settings by clicking **Reset all folders.**

This setting enables you to define the exact views you want and ensure that neither of the preset views will take precedence over the views you define.

tips and tricks

Answers to the questions most frequently asked of Microsoft's product support team, Technical Services

EDITED BY CHARLES BERMANT

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Products covered in this issue: Microsoft Works, Outlook, and Office

Microsoft Works 4.5

Microsoft Works

Easily add images to a Works footer.

It's easy to make a Microsoft Works word processor document look distinctive by adding text and images to a header or footer so they print on every page. To do this:

1. In a graphics or image-viewing program, such as Microsoft Photo Editor or Microsoft Paint, open the image you want to use.
2. Copy the image (on the **Edit** menu, click **Copy**).
3. Switch to Works and open your word processor document.
4. On the **View** menu, click **Page Layout**.
5. Click inside the header or footer area.
6. On the **Edit** menu, click **Paste**. (See figure 1).
7. Type any text you want to add above, below, or beside your image.
8. Format the text-and-image paragraph by aligning it left, right, or center, and changing the font, font size, or color.

Note that you can also use the Insert menu in Works to insert ClipArt.

By default, Works positions images inline with text. You can position an image independent of existing text by changing the Text Wrap setting to Absolute.

To set an image's Text Wrap:

1. Click the image to select it.
2. On the **Format** menu, click **Text Wrap**.
3. Click **Absolute**.
4. Click **OK**.
5. Drag the picture to the desired position.

Figure 1. It's easy to place text and images in a header or footer of a Works word processor document by cutting and pasting.

Microsoft Works 4.0

Microsoft Works

Sort ZIP Codes different ways.

If you mix regular and extended ZIP Codes in a database and then try to sort on the ZIP Code field, Works sorts the regular and extended codes separately. Works interprets an extended code (that contains a space or dash) as text and the regular five-digit codes as numeric values.

To ensure that all codes are the same type so they get sorted properly, set the attribute of the ZIP Code field to Text before typing entries. If you type entries and then change the attribute of the field, all subsequent entries will be designated as text, but any existing numeric codes will not change attributes.

To set a ZIP Code field for text:

1. In the database, go to Form Design view.
2. On the **Format** menu, click **Field**.

continued on page 36

Coming
in the summer issue...
Winning tips from the *Microsoft Magazine* Reader Tip Contest.

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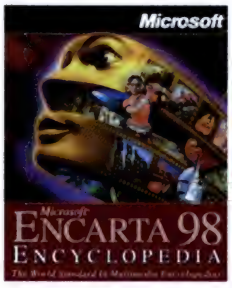

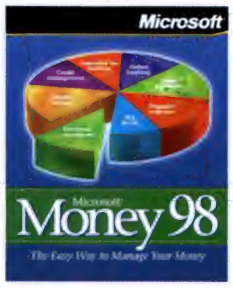

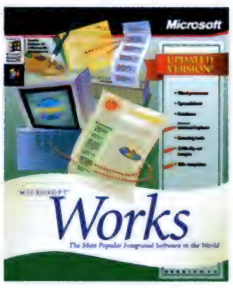

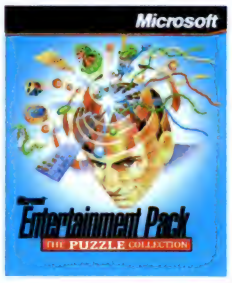

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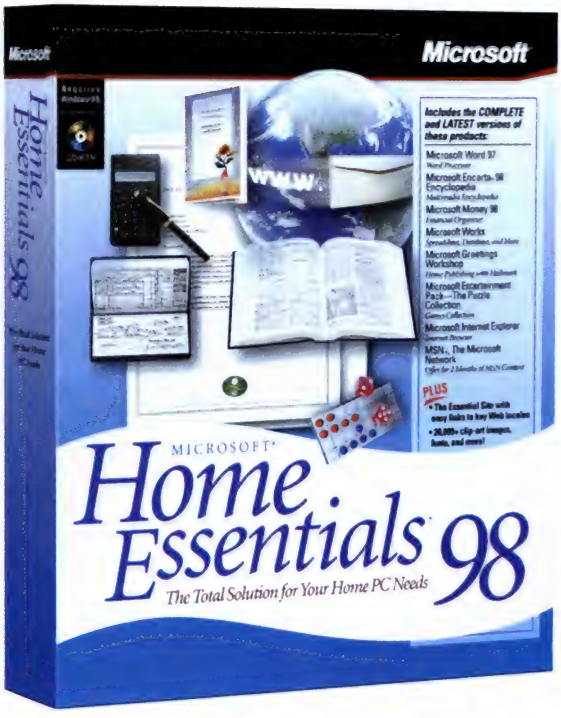

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3. Click the **Field** tab.
4. Click **Text**. (See figure 2).
5. Click **OK**.

Microsoft Outlook 97

Attachments needn't bog down your e-mail.

If a document that you want to attach to an e-mail message resides on the Web or your intranet, you can attach it to a Microsoft Outlook message without bogging down your mail.

To include a URL without sending the document, do the following:

1. Within the text of the message, type the URL exactly or paste it from the Address window of the browser.
2. After you type this and hit the spacebar, the URL automatically becomes a hyperlink.

When the recipient downloads the message, the "attached" file remains on the home server but is connected via the active hyperlink. To view the source file, the recipient need only click the hyperlink.

Microsoft Office 97

Use the Paste Special command across Office applications.

The Paste Special command, on the Edit menu of all Microsoft Office applications, makes it easy for you to copy, paste, and edit data across different applications.

To do so:

1. Select the item you want to paste (for example, a chart within Microsoft Excel) and then select **Copy** from the **Edit** menu.
2. Switch to the application you want to paste the selection into (for example, a Microsoft Word document).
3. Click the cursor where you want to insert the chart.
4. On the **Edit** menu, click **Paste Special** and then click **Microsoft Excel Chart Object**.
5. The Excel chart appears within the Word document. To edit the chart, just double-click it, and Excel will load and allow you to make all the modifications you want.

Microsoft Office 97

Use AutoCorrect for word processing shorthand.

AutoCorrect, which corrects commonly misspelled words and terms, can be used across all Microsoft Office applications. Since AutoCorrect works from a single list, an entry in one program works for all the others.

In addition to correcting mistakes, AutoCorrect can work as a shorthand tool. You can set it up to produce words you use frequently—like terms that are specific to your work—when you type a chosen abbreviation.

For example:

1. On the **Tools** menu, click **AutoCorrect.**
2. In the **Replace** window, type your initials.
3. In the **With** window, type your full name.
4. Click **Add**.
5. Click **OK**.

From this point on, whenever you type your initials (separately and not as part of any other word), AutoCorrect will insert your full name.

Microsoft Office 97

It's easy to draw common shapes in your documents.

Not everyone can draw, even with the aid of a paint or graphics program. Fortunately, even if you lack such talent there is a way to insert professional-looking, consistent shapes into your documents with the AutoShapes tool available in all Microsoft Office applications.

To use this tool:

1. From the **View** menu, click **Toolbars**, and then select the **Drawing Toolbar**.
2. Once this appears, click the **AutoShapes** drop-down menu.

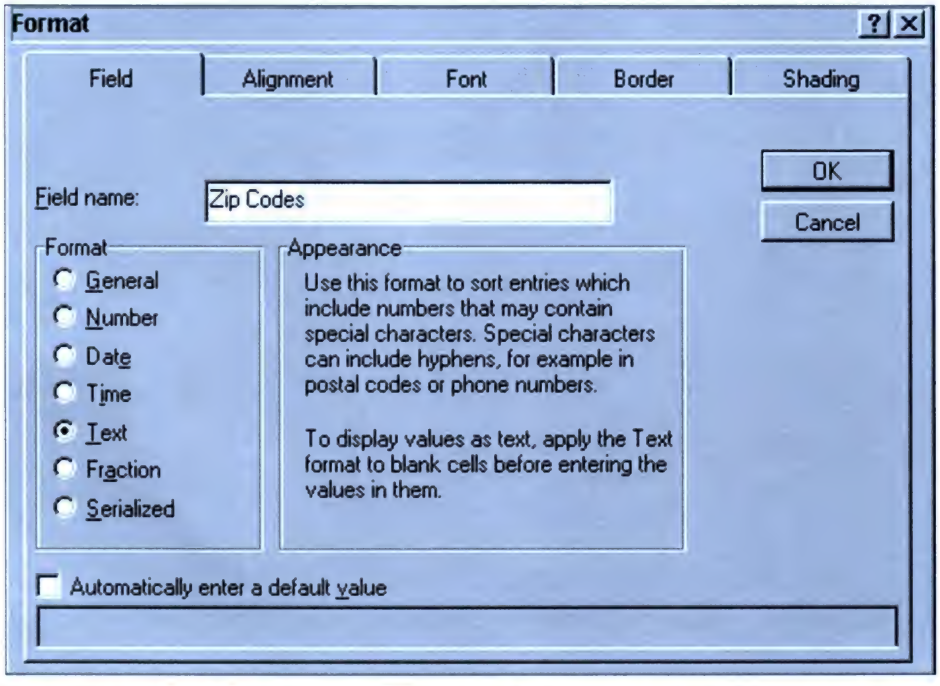

Figure 2. To sort five-digit and extended ZIP Codes the same way in a Works database, set the attribute of the ZIP Code field to Text before typing entries.

3. Pick an autoshape from one of the categories: lines, basic shapes, block arrows, flowchart symbols, stars and banners, or callouts.
4. After selecting the autoshape, move the cursor to the desired location. Click and drag within the document to draw the shape to the desired size. (See figure 3).

To add text to the object, simply right-click it, click **Add Text**, and start typing.

MORE

For more tips and tricks, go to http://www.microsoft.com/magazine/spmagazine/ and select the Tips and Tricks guide.

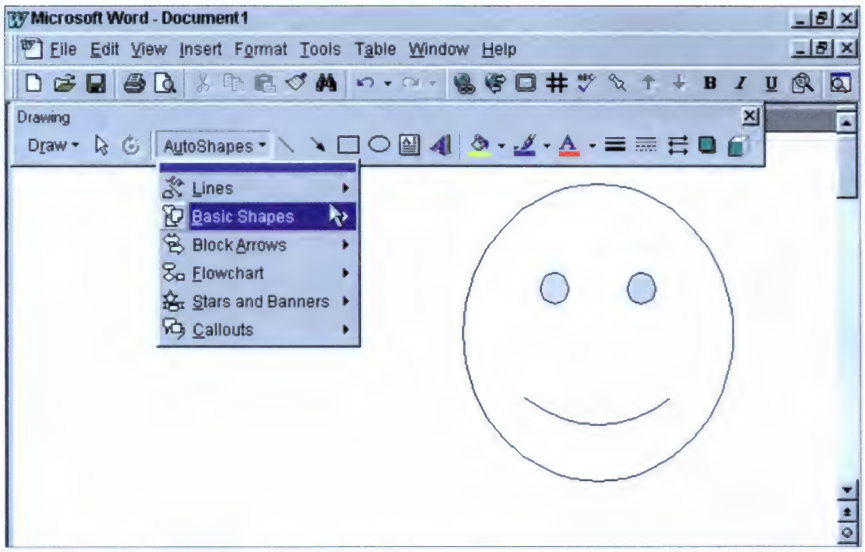

Figure 3. Use AutoShapes in any Office 97 document to add a perfectly drawn shape, such as a circle, line, or banner, which you can then add color or text to.

Support

Support Online offers 24-hour-a-day support for Microsoft applications. The Web site is continually updated with the latest technical and support information. Go to http://www.microsoft.com/magazine/spsupport/ to see what's available. Here are two examples of what you can do on the site.

Use the FAQ feature for answers to frequently asked questions

Remember that most product questions have been asked and answered many times before. Use the Frequently Asked Question database to see common questions and their solutions.

To access product-specific FAQs:

1. *Go to http://www.microsoft.com/magazine/spsupport/.*
2. *Choose **Frequently Asked Questions.***
3. *Select a product or topic from the drop-down lists, for instance Word for Windows or Printing.*

Your problem may not be covered specifically by an FAQ, but you may find something close enough to help.

Find support phone numbers online with ease

One important aspect of online support is the Support Options feature, which helps find answers and provide directions to the various support options available from Microsoft. With the Options and Phone Number tool, users can enter product information, and then receive information on how to obtain support from Microsoft.

To access this:

1. *Go to http://www.microsoft.com/magazine/spsupport/.*
2. *On the main Support Online screen, choose **Phone Numbers and Support Options**, and then choose your product area and service option to get a complete description of support options and policies.*

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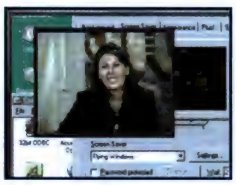

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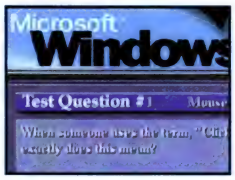

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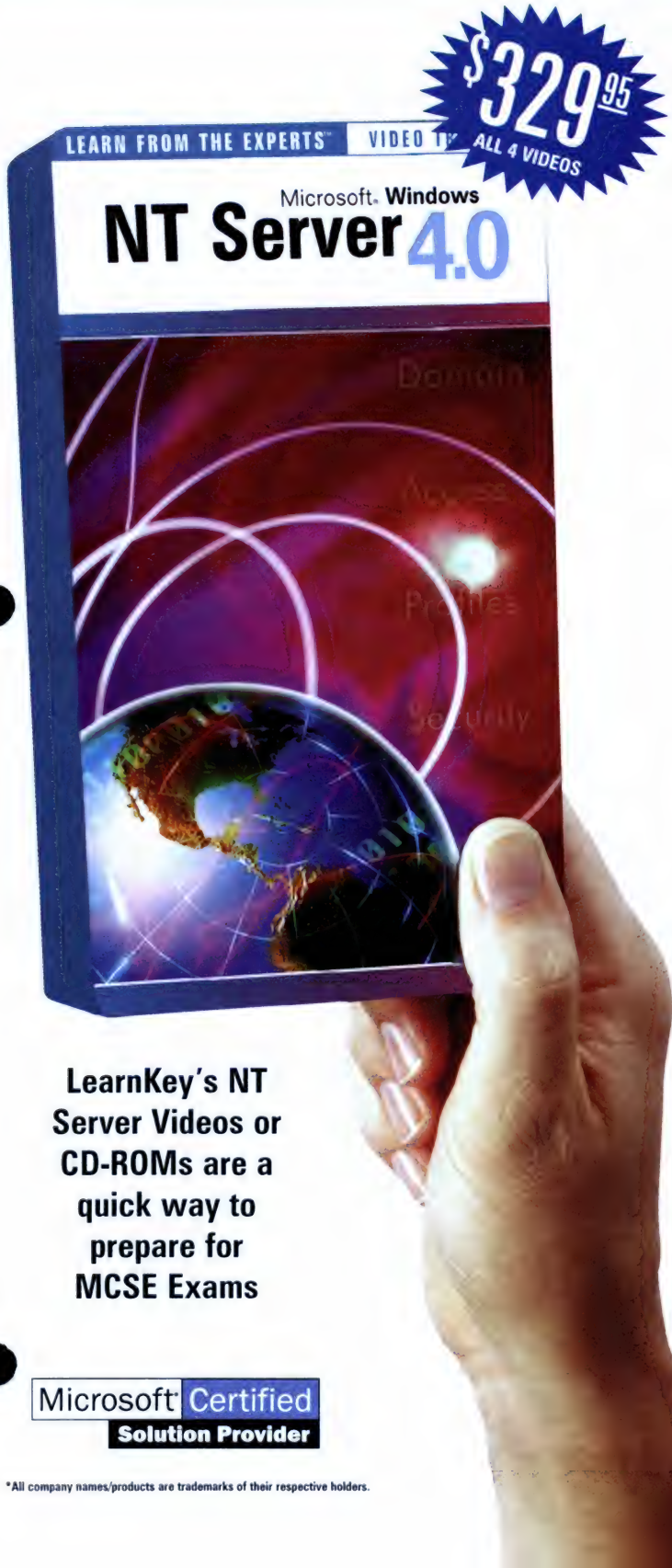

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Reed Jacobson
EXCEL 97 EXPERT

Heather Osterloh
MCT/MCSE EXPERT

Experts

Reed Jacobson is a top expert on Microsoft Excel. He is author of the best selling Microsoft Press book, *Excel Visual Basic Step by Step*. Reed worked as a programmer for Hewlett-Packard for ten years before becoming a consultant, specializing in Microsoft Excel, Visual Basic, and other Microsoft Office products.

With more than a decade of experience, **Heather Osterloh** is a leader in the networking industry. As a Novell Certified CNI, ECNE, Microsoft Certified Trainer, Certified Network Expert and Network General Sniffer Trainer, she provides consulting and training services both nationally and internationally.

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PC maintenance tips (Select articles from the Fine-Tune Your System drop-down menu.)	http://www.microsoft.com/magazine/sparchive/

Unclutter your hard disk

Spring cleaning your PC is more than just shooting compressed air through the mouse or wiping off the screen. Undoubtedly, your hard disk has accumulated files that are no longer needed, a build-up that requires some judicious spit and polish.

No matter how sophisticated a PC or an operating system becomes, one basic truth holds firm: Regardless of its size, a computer will always operate more efficiently if it contains less data. So a good seasonal practice is to get rid of everything you don't need, including applications and the ever-annoying temporary files.

Use it or lose it

A rule of thumb: If you haven't used a program in four or five months, remove it through the uninstall utility. Similarly, if you haven't referred to a particular document in a year, back it up to a storage disk. Another gauge for hard-disk space: When new, your computer should be 30 to 40 percent full and should fill by 10 to 15 percent each year. If your hard disk is 80 percent or more full, you need to purge some files. If you can't free up at least 20 percent, it's time to upgrade your hard disk.

There are exceptions to the use-it-or-lose-it rule. Some utilities you may use only a couple times a year, but there'll still useful to have on hand.

In most cases, though, you're better off deleting programs that remain dormant. You'll want to be sure ahead of time that you're not going to use a program again—or that you still have the original installation disks.

Get rid of those temp files

As for temporary files, most of them are removed when you shut down the system or when you quit applications. But nevertheless they always seem to gather—for instance if the machine crashes or through other anomalous events. It helps to remove them manually every once in a while using the following process.

1. Open **My Computer** and select your hard drive, usually C: and open it.
2. In your Windows directory browse to the Temp subdirectory, the default location for temporary files.
3. Click **List** in the **View** menu and click **Details**.
4. In the **Arrange Icons** menu click **By Date**.
5. Select all the files and folders with dates earlier than today (they are no longer being used) and put them in the recycle bin. You may find some .exe files among them, and it is generally okay to delete these—often they are just left over from installation programs. If you feel uncomfortable deleting them, it is okay to leave them.
6. Empty your recycle bin.

Keep in mind that using Windows Explorer to randomly excise data or erase entire directories is the wrong way to approach spring disk cleaning. Even if you see unknown files scattered throughout your hard disk, it's better to leave them alone than to delete something and discover you need it later.

Check out an uninstall utility

In anticipation of next spring, you might consider an uninstall program. Utilities like Quarterdeck's Clean Sweep and Cybermedia's Uninstaller assure that all vestiges of every application are removed along with the application itself, something that is not always accomplished by the baseline Add/Remove Programs utility in the Control Panel. Uninstall programs monitor application installation to see what files are added. Uninstalling your programs this way will allow for more complete and safer installs.

According to David Murphy, a consultant in Columbia, Maryland, users should not delete a file unless they are sure it is no longer needed. "A lot of times, an uninstaller will ask if you want to delete a certain file," he said. "But even if one program isn't using this file, maybe another program is still using it. So the safe choice is to keep the file."

Update hardware drivers

Spring is also a good time to upgrade how your system manages hardware. Once you buy a peripheral—printer, modem, sound card, video card, or other item—the manufacturer continues to refine its performance within the Windows environment. So it makes sense to log on to the manufacturers' Web sites periodically to download any new drivers. In many cases, updated drivers can correct annoying performance problems and delay the inevitable hardware upgrade.

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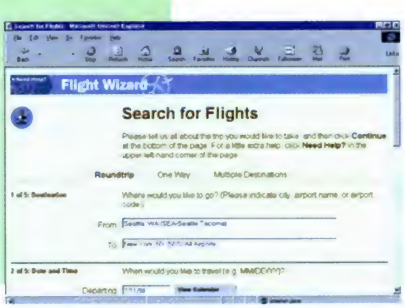
A Guide to the Web sites featured in this issue of Microsoft Magazine



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Hot products

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http://www.microsoft.com/magazine/sphomeessentials/

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http://www.microsoft.com/magazine/spoffice2/

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Promotions

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Expires: May 31, 1998

For a limited time, customers who acquire one of the qualified spring campaign applications and at least one of the qualified spring campaign hardware products are eligible for a $20 mail-in rebate on each hardware product. Qualified applications include: Microsoft Office 97 Small Business Edition, Home Essentials 98, Publisher 98, Publisher 98 Deluxe Edition with Picture It!, Office 97 Standard Edition, and Office 97 Professional Edition. Qualified hardware products include Microsoft Natural® Keyboard Elite, IntelliMouse Trackball, and IntelliMouse®. The rebate is also available to customers who acquire the Office 97 Professional Edition with IntelliMouse bundle during the promotional period.

How to get:

Rebate coupon included in the hardware product boxes. Rebate coupon for the Office 97 Professional with IntelliMouse bundle will be available at point of purchase.

Natural Keyboard Elite
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Estimated Retail Price: $84.95

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How To Select CD-ROMs For Your System.

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